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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/663,038	09/15/2000	Edward Christian Jelks	41992-00220	3377

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EXAMINER

PAYNE, DAVID C

ART UNIT PAPER NUMBER

2638

DATE MAILED: 09/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/663,038	JELKS, EDWARD CHRISTIAN	
	<b>Examiner</b>	<b>Art Unit</b>	
	David C. Payne	2638	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 May 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-9,11-14,16-21 and 23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-9,11-14,16-21 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                        |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____   |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's claims as amended are not supported by the specification. Applicant was contacted on August 22, 2005 (see attached Interview Summary) for evidence of support. Applicant failed to respond with said evidence within the two week time period as requested.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1, 3-9, 11-14, 16-21 and 23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant's newly added limitation "wherein a slope of a transfer curve relating relative optical intensity of an optical signal output by the optical modulator versus phase angle of the optical modulator is at least 0.087 per degree" or similar language found in independent claims 1, 8, 14, 21 and 23 does not find support in the specification. Furthermore, based on the aforementioned interview summary, it is not clear from where this information is found in Figure 5 of the applicant's drawings.
3. The balance of the office action is therefore directed to claimed subject matter that has support in the specification as found in the set of applicant's claims of 12 October 2004.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3-9, 11-14, 16-21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. US 5,754,714 (Suzuki) in view of Hofmeister US 6,091,864 (Hofmeister), Heflinger et al. US 6,396,605 B1 (Heflinger) and Nishimoto et al. US 5359449 A (Nishimoto).

Regarding claims 1, 8, 9, 14, and 18 Suzuki disclosed

A high efficiency optical feedback modulator operable to produce a high modulation depth optical signal, comprising:

an optical modulator (figure 7) having a first (signal light) and a second optical input (control light) and a first and a second optical output (13 or 14);

wherein the first optical input is operable to receive an input light beam.

Suzuki does not disclose an optical feedback system coupling the second optical output to the second optical input and operable to communicate an optical feedback signal from the second optical output to the second optical input (control light);

Suzuki does not disclose that the optical modulator operates to modulate the input light beam and the optical feedback signal in response to an electrical signal to optical signal from the first optical output.

Suzuki does not disclose an amplifier disposed in the feedback path between the second optical output and one of the inputs.

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Hofmeister disclosed (Figure 4) an optical modulator with an electrical input (RF1). It would have been obvious to one of ordinary skill in the art at the time of invention to modulate the Suzuki modulator with the external (RF1) signal in order to imprint an analog data signal such as a CATV signal (see col./line(s): 4/15-25). Furthermore, no patentable weight has been given to the limitation of "the high modulation depth" since it does not pose any substantive differences over the prior art.

Heflinger disclosed a modulator (Figure 1) with feedback (16 of Figure 1). It would have been obvious to one of ordinary skill in the art at the time of invention to use the Heflinger feedback in the Suzuki invention so as to tune the optical interferometer without introducing dither to the optical path length of the leg of the optical interferometer (see Heflinger col. 2 lines 45-60).

Nishimoto disclosed an amplifier disposed in the feedback path between the second optical output and one of the inputs (Figure 13). It would have been obvious to one of ordinary skill in the art at the time of invention to place an amplifier in a feedback path of the Suzuki modulator in order to increase the gain of the input signal for better launch power in the transmission of the optical signal.

Regarding claim 3, Suzuki disclosed an optical waveguide (Figure 7).

Regarding claims 4, 17, 19 the modified invention of Suzuki, Hofmeister and Heflinger disclosed an analog signal (CATV, see col./line(s): 4/15-25).

Regarding claim 16, Suzuki disclosed a Mach Zehnder two-by-two optical modulator (Figure 7).

Regarding claims 5, and 11 Suzuki disclosed couplers (Figure 7, #1 and #2) but not 3db couplers. However, it would have been obvious to one of ordinary skill in the art at the time of invention to use 3db couplers so that an equal amount of energy would be split by each branch yielding a 50:50 power split and equally mixing the input optical signals as is well known in the art.

Regarding claims 6, 12 the modified invention of Suzuki, Hofmeister and Heflinger disclosed a first

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and second phase modulator (Hofmeister, figure 5, #102, and #116).

Regarding claims 7, 13, 20 the modified invention of Suzuki, Hofmeister and Heflinger disclosed the use of repeaters (Hofmeister, e.g., col./line: 4/20-27).

Regarding claims 21 and 23, Suzuki disclosed, (figure 7)

a method of communicating an input light beam to a first optical input (signal light) of an optical modulator;

Suzuki does not disclose intensity modulating at least one of the optical signals with an electronic input signal to produce a first and a second phase shift optical signal; and coupling the phase shift optical signals to produce an optical feedback signal.

Suzuki does not disclose that the optical modulator operates to modulate the input light beam and the optical feedback signal in response to an electrical signal to optical signal from the first optical output.

Suzuki does not disclose an amplifier disposed in the feedback path between the second optical output and one of the inputs.

Hofmeister disclosed (Figure 5) an optical modulator with an electrical input (RF1) controllable to shift the phase of the signals. It would have been obvious to one of ordinary skill in the art at the time of invention to modulate the Suzuki modulator with the external (RF1) signal in order to imprint an analog data signal such as a CATV signal (see col./line(s): 4/15-25).

Heflinger disclosed a modulator (Figure 1) with feedback (16 of Figure 1). It would have been obvious to one of ordinary skill in the art at the time of invention to use the Heflinger feedback in the Suzuki invention so as to tune the optical interferometer without introducing dither to the optical path length of the leg of the optical interferometer (see Heflinger col. 2 lines 45-60).

Nishimoto disclosed an amplifier disposed in the feedback path between the second optical output and one of the inputs (Figure 13). It would have been obvious to one of ordinary skill in the art at the time of invention to place an amplifier in a feedback path of the Suzuki modulator in order to increase

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the gain of the input signal for better launch power in the transmission of the optical signal.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

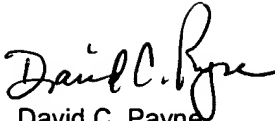
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Payne whose telephone number is (571) 272-3024. The examiner can normally be reached on M-F, 7a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Dcp

  
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